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toxlit, frosti, fsta, jicst, japiro
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FILE 'JAPIO' ENTERED AT 15:48:51 ON 15 MAR 2002  
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⇒ *s* cold tolerance

4132 COLD TOLERANCE

=> s 11 and plant

1120 T-1 AND PLANT

⇒ *s* 12 and polypeptide

11 T-2 AND POLYPEPTIDE

=> d 13 ti abs ibib tot

L3 ANSWER 1 OF 11 MEDLINE  
TI A comparison of the chilling-stress response in two differentially tolerant cultivars of tomato (*Lycopersicon esculentum*).  
AB The chilling responses of two differentially cold tolerant cultivars of tomato were monitored through in vivo labelling of polypeptides with [<sup>35</sup>S]methionine, both during a gradual temperature decrease (2 degrees C/day) and also during a rapid cold shock (4 degrees C). The polypeptides were separated by one-dimensional sodium dodecyl sulfate-polyacrylamide gel electrophoresis and revealed by fluorography. Both cultivars showed changes in the **polypeptide** profiles resulting from either chilling treatment. During the gradual temperature decrease, there were few differences exhibited between the two cultivars. However, during cold shock both cultivars showed the altered synthesis of several unique polypeptides. Both cultivars showed the appearance of a 35-kDa **polypeptide** during the gradual temperature decrease and also during the cold shock. The appearance of three high relative mass polypeptides was found in both cultivars only during the gradual temperature decrease. Treatments with cycloheximide and chloramphenicol suggested that cold-shock polypeptides are both nuclear and organelle encoded. The cold-shock response in roots was different from the response in leaves and between cultivars. A comparison of the two cultivars showed a number of differences in **polypeptide** synthesis which may be related to increased **cold tolerance**.

ACCESSION NUMBER: 92385026 MEDLINE  
DOCUMENT NUMBER: 92385026 PubMed ID: 1515121  
TITLE: A comparison of the chilling-stress response in two differentially tolerant cultivars of tomato (*Lycopersicon esculentum*).  
AUTHOR: Giroux R W; Filion W G  
CORPORATE SOURCE: J. Tuzo Wilson Research Laboratories, Department of Botany,  
University of Toronto, Mississauga, Ont., Canada.  
SOURCE: BIOCHEMISTRY AND CELL BIOLOGY, (1992 Mar-Apr) 70 (3-4) 191-8.  
PUB. COUNTRY: Journal code: ALR; 8606068. ISSN: 0829-8211.  
Canada  
Journal; Article; (JOURNAL ARTICLE)  
LANGUAGE: English  
FILE SEGMENT: Priority Journals  
ENTRY MONTH: 199210  
ENTRY DATE: Entered STN: 19921023  
Last Updated on STN: 19921023  
Entered Medline: 19921007

L3 ANSWER 2 OF 11 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.  
TI Cold tolerances in plants.  
ACCESSION NUMBER: 1999:74398 BIOSIS  
DOCUMENT NUMBER: PREV199900074398  
TITLE: Cold tolerances in plants.  
AUTHOR(S): Griffith, M.  
CORPORATE SOURCE: Waterloo Canada  
ASSIGNEE: UNIVERSITY OF WATERLOO  
PATENT INFORMATION: US 5852172 Dec. 22, 1998  
SOURCE: Official Gazette of the United States Patent and Trademark Office Patents, (Dec. 22, 1998) Vol. 1217, No. 4, pp. 3454.  
ISSN: 0098-1133.  
DOCUMENT TYPE: Patent  
LANGUAGE: English

L3 ANSWER 3 OF 11 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.  
TI PROTEIN SYNTHESIS AT LOW TEMPERATURES IN TWO SOYBEAN CULTIVARS DIFFERING

BY THEIR COLD SENSITIVITY.

AB The effect of low temperature (14.degree.C/8.degree.C, day/night) on **polypeptide** synthesis in leaves of two soybean (Glycine max [L.] Merr.) cvs (Verdon and Maple Arrow) differing in cold sensitivity was investigated. The two cultivars were initially characterized in terms of **cold tolerance** according to their growth at the young plant stage at 14.degree. C/8.degree. C. Verdon was found to be more tolerant than Maple Arrow. In vivo [35S]-methionine labeled polypeptides were resolved by two-dimensional electrophoresis. Autoradiograms were computer analyzed to evidence and quantify significative changes occurring after 5 days at 14.degree. C/8.degree. C, and to compare the response of the two cultivars. Most of the observed changes were quantitative. The two cultivars essentially exhibited a common modified **polypeptide** pattern in response to cold temperatures, but the changes were quantitatively more pronounced in the most tolerant cultivar. Computer analysis of two-dimensional electrophoresis gels allowed, for the first time, characterization of cultivar differences in terms of protein pattern under cold conditions.

ACCESSION NUMBER: 1992:506804 BIOSIS

DOCUMENT NUMBER: BA94:125329

TITLE: PROTEIN SYNTHESIS AT LOW TEMPERATURES IN TWO SOYBEAN CULTIVARS DIFFERING BY THEIR COLD SENSITIVITY.

AUTHOR(S): CABANE M; VINCENS P; BOUDET A M

CORPORATE SOURCE: CENTRE RECHERCHE, BIOLOGIE PHYSIOLOGIE VEGETALES, URA CNRS

1457, 118 ROUTE NARBONNE, F-31062 TOULOUSE CEDEX, FR.

SOURCE: PHYSIOL PLANT, (1992) 85 (4), 573-580.

CODEN: PHPLAI. ISSN: 0031-9317.

FILE SEGMENT: BA; OLD

LANGUAGE: English

L3 ANSWER 4 OF 11 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.

TI Isolation and characterization of a novel antifreeze protein from carrot (Daucus carota).

AB A modified assay for inhibition of ice recrystallization which allows unequivocal identification of activity in **plant** extracts is described. Using this assay a novel, cold-induced, 36 kDa antifreeze protein has been isolated from the tap root of cold-acclimated carrot (Daucus carota) plants. This protein inhibits the recrystallization of

ice and exhibits thermal-hysteresis activity. The **polypeptide** behaves as monomer in solution and is N-glycosylated. The corresponding gene is unique in the carrot genome and induced by cold. The antifreeze protein appears to be localized within the apoplast.

ACCESSION NUMBER: 1999215597 EMBASE

TITLE: Isolation and characterization of a novel antifreeze protein from carrot (Daucus carota).

AUTHOR: Smallwood M.; Worrall D.; Byass L.; Elias L.; Ashford D.; Doucet C.J.; Holt C.; Telford J.; Lillford P.; Bowles D.J.

CORPORATE SOURCE: M. Smallwood, The Plant Laboratory, Department of Biology, University of York, PO Box 373, York YO1 5YW, United Kingdom. mfs1@york.ac.uk

SOURCE: Biochemical Journal, (1 Jun 1999) 340/2 (385-391).

Refs: 29

ISSN: 0264-6021 CODEN: BIJOAK

COUNTRY: United Kingdom

DOCUMENT TYPE: Journal; Article

FILE SEGMENT: 029 Clinical Biochemistry

LANGUAGE: English

SUMMARY LANGUAGE: English

L3 ANSWER 5 OF 11 SCISEARCH COPYRIGHT 2002 ISI (R)

TI PROTEIN-SYNTHESIS AT LOW-TEMPERATURES IN 2 SOYBEAN CULTIVARS DIFFERING BY THEIR COLD SENSITIVITY

AB The effect of low temperatures (14-degrees-C/8-degrees-C, day/night) on **polypeptide** synthesis in leaves of two soybean (*Glycine max* [L.] Merr.) cvs (Verdon and Maple Arrow) differing in cold sensitivity was investigated. The two cultivars were initially characterized in terms of **cold tolerance** according to their growth at the young plant stage at 14-degrees-C/8-degrees-C. Verdon was found to be more tolerant than Maple Arrow. *In vivo* [<sup>35</sup>S]-methionine labeled polypeptides were resolved by two-dimensional electrophoresis. Autoradiograms were computer analyzed to evidence and quantify significative changes occurring after 5 days at 14-degrees-C/8-degrees-C, and to compare the response of the two cultivars. Most of the observed changes were quantitative. The two cultivars essentially exhibited a common modified **polypeptide** pattern in response to cold temperatures, but the changes were quantitatively more pronounced in the most tolerant cultivar. Computer analysis of two-dimensional electrophoresis gels allowed, for the first time, characterization of cultivar differences in terms of protein pattern under cold conditions.

ACCESSION NUMBER: 92:531843 SCISEARCH

THE GENUINE ARTICLE: JL675

TITLE: PROTEIN-SYNTHESIS AT LOW-TEMPERATURES IN 2 SOYBEAN CULTIVARS DIFFERING BY THEIR COLD SENSITIVITY

AUTHOR: CABANE M (Reprint); VINCENS P; BOUDET A M

CORPORATE SOURCE: CTR RECH BIOL & PHYSIOL VEGETALES, CNRS, URA 1457, 118 ROUTE NARBONNE, F-31062 TOULOUSE, FRANCE (Reprint); ECOLE NORM SUPER, CNRS, URA 686, F-75230 PARIS 05, FRANCE

COUNTRY OF AUTHOR: FRANCE

SOURCE: PHYSIOLOGIA PLANTARUM, (AUG 1992) Vol. 85, No. 4, pp. 573-580.

ISSN: 0031-9317.

DOCUMENT TYPE: Article; Journal

FILE SEGMENT: AGRI

LANGUAGE: ENGLISH

REFERENCE COUNT: 31

\*ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS\*

L3 ANSWER 6 OF 11 BIOTECHDS COPYRIGHT 2002 DERWENT INFO AND ISI

TI Novel nucleic acid fragment encoding *Fusarium venenatum* choline-oxidase **polypeptide** useful as probes for identifying choline-oxidase from other species and for enhancing cold and salt tolerance of plants; transgenic **plant** construction

AN 2001-04105 BIOTECHDS

AB A nucleic acid fragment (I) encoding choline-oxidase (II) (EC-1.1.3.17) obtained from *Fusarium venenatum* is claimed. (II) has the disclosed 543 amino acid sequence. (I) encodes a protein with amino acid sequence

with

95% identity with amino acids 1-543 of the disclosed sequence or has 95% homology with nucleotides 49-1,677 of a 1,863 nucleotide sequence (disclosed) or encodes a protein with choline-oxidase activity which hybridizes under low stringency conditions with 49-1,677 nucleotides of the disclosed DNA sequence or is a fragment or complementary strand. Also claimed are: a construct containing (I) and control sequences; a recombinant expression vector containing the construct; a recombinant host cell containing the construct; and production of (II) involving culturing the transformed host cell under conditions suitable for production of the protein; and isolated nucleic acid fragment encoding a fusion protein. (I) is used as a DNA probe and in forming transgenic plants e.g. *Arabidopsis* sp. with increased **cold tolerance** and salt tolerance. (I) is contained in *Escherichia coli* NRRN B-30066 in plasmid pFD0808. (20pp)

ACCESSION NUMBER: 2001-04105 BIOTECHDS

TITLE: Novel nucleic acid fragment encoding *Fusarium venenatum* choline-oxidase **polypeptide** useful as probes for identifying choline-oxidase from other species and for

enhancing cold and salt tolerance of plants;  
transgenic plant construction  
AUTHOR: Yaver, Berka R M; Rey M W  
PATENT ASSIGNEE: Novo-Nordisk  
LOCATION: Davis, CA, USA.  
PATENT INFO: US 6146864 14 Nov 2000  
APPLICATION INFO: US 1999-443087 18 Nov 1999  
PRIORITY INFO: US 1999-443087 18 Nov 1999  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
OTHER SOURCE: WPI: 2001-049054 [06]

L3 ANSWER 7 OF 11 BIOTECHDS COPYRIGHT 2002 DERWENT INFO AND ISI  
TI New isolated antifreeze **polypeptide** from fish skin;  
recombinant antifreeze protein production for use in the food  
industry  
and gene for use in imparting **cold tolerance** or  
freezing tolerance to animal, **plant**, fungus, bacterium cell  
AN 1997-11051 BIOTECHDS  
AB An isolated skin-type intracellular antifreeze protein (sAFP) is  
claimed,  
where sAFP: comprises an N-terminal MDAP subsequence; comprises an  
internal AATAAAKAAA subsequence; does not comprise a signal peptide;  
induces a concentration-dependent decrease in the freezing point of an  
aq. solution. Also claimed are: conservative modifications of sAFP; an  
isolated intracellular sAFP encoded by a coding nucleic acid which  
hybridizes to a sAFP nucleic acid selected from sAFP1, sAFP2, sAFP3,  
sAFP4, sAFP5, sAFP6, sAFP7, sAFP8, F2 and 11-3, where the coding nucleic  
acid does not hybridize to a pkenc17 nucleic acid; an expression vector  
containing the nucleic acid encoding the sAFP; a recombinant cell  
containing the sAFP nucleic acid; a method for making an aq. composition  
resistant to freezing, which involves adding sAFP to the composition; an  
antibody specific for sAFP, which does not bind to liver-type AFP; and a  
recombinant skin-type promoter, which comprises nucleic acids which  
direct high levels of expression of nucleic acid in the skin of winter  
flounder. AFPs are useful in the food industry and in providing  
**cold tolerance** to **plant**, fungus, animal and  
bacterium cells. (104pp)

ACCESSION NUMBER: 1997-11051 BIOTECHDS  
TITLE: New isolated antifreeze **polypeptide** from fish skin;  
recombinant antifreeze protein production for use in the  
food industry and gene for use in imparting **cold**  
**tolerance** or freezing tolerance to animal,  
**plant**, fungus, bacterium cell  
AUTHOR: Hew C; Gong Z  
PATENT ASSIGNEE: HSC-Res.Develop.  
LOCATION: Toronto, Ontario, Canada.  
PATENT INFO: WO 9728260 7 Aug 1997  
APPLICATION INFO: WO 1996-CA62 31 Jan 1996  
PRIORITY INFO: US 1996-10920 31 Jan 1996  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
OTHER SOURCE: WPI: 1997-402614 [37]

L3 ANSWER 8 OF 11 BIOTECHDS COPYRIGHT 2002 DERWENT INFO AND ISI  
TI New isolated gene encoding delta-9-desaturase of cyanobacteria;  
recombinant stearoyl-CoA-desaturase preparation; protein and DNA  
sequence  
AN 1995-06711 BIOTECHDS  
AB A recombinant stearoyl-CoA-desaturase (EC-1.14.99.5, delta-9-desaturase)  
represented by a specified protein sequence is claimed. Also claimed  
are: (a) an isolated gene (DNA sequence specified) encoding the  
stearoyl-CoA-desaturase; (b) a recombinant vector capable of expressing  
a

**polypeptide** encoded by the gene; (c) a transformant obtained by transforming a host cell with the recombinant vector; and (d) a method for producing the recombinant stearoyl-CoA-desaturase involving growing the transformant in a medium and recovering the expression product. The gene is useful for improving the composition of fatty acids of animals, plants and microorganisms, and for producing animals, plants or organisms

which tolerate low temp. In an example, genomic DNA fragments of *Synechocystis* PCC6803 were ligated into phage lambda-DASH-II. Following transformation of *Escherichia coli*, plaque hybridization was performed using *Anabaena variabilis* desC gene as a probe. A 6 kb fragment was subcloned into plasmid pBluescript-III-KS+ and the homologous region was sequenced, showing 64% homology with desC. (14pp)

ACCESSION NUMBER: 1995-06711 BIOTECHDS

TITLE: New isolated gene encoding delta-9-desaturase of cyanobacteria; recombinant stearoyl-CoA-desaturase preparation; protein and DNA sequence

AUTHOR: Murata N

PATENT ASSIGNEE: Tohoku-Elec.Power; Mitsubishi; Mitsubishi-Chem.

PATENT INFO: EP 644263 22 Mar 1995

APPLICATION INFO: EP 1994-114957 22 Sep 1994

PRIORITY INFO: JP 1993-236720 22 Sep 1993

DOCUMENT TYPE: Patent

LANGUAGE: English

OTHER SOURCE: WPI: 1995-116988 [16]

L3 ANSWER 9 OF 11 BIOTECHDS COPYRIGHT 2002 DERWENT INFO AND ISI

TI Chilling resistant transgenic higher plant;  
transgenic plant with cold tolerance  
containing a spinach, pea or *Arabidopsis* sp. glycerol-3-phosphate-acyltransferase gene, for decreased membrane saturated phosphatidylglycerol content

AN 1992-12564 BIOTECHDS

AB The following are new: a higher transgenic plant with an increased proportion of unsaturated fatty acids in at least 1 of its lipid classes; a process for increasing the unsaturated fatty acid content in lipids of a higher plant, by introducing exogenous DNA encoding a **polypeptide** with glycerol-3-phosphate-acyltransferase (EC-2.3.1.15) activity (e.g. from cold tolerant spinach (*Spinacia oleracea*), pea (*Pisum sativum*) or *Arabidopsis* sp., with a higher substrate selectivity for oleoyl-acyl carrier protein (ACP) than for palmitoyl-ACP; a transgenic plant with a lowered critical temp. for chilling than normal, with a decreased proportion of saturated phosphatidylglycerol (PG) in its cell membranes; and a process for lowering the critical temp. for chilling injury of a higher plant, by decreasing the content of saturated PG in its cell membranes. The method is used for increasing cold tolerance in e.g. rice (*Oryza sativa*), maize (*Zea mays*), yam (*Dioscorea* sp.), cucumber (*Cucumis sativa*), bell pepper (*Capsicum annuum*), aubergine (*Solanum melongena*), banana (*Musa sapientum*), melon (*Cucumis melo*), rose (*Rosa* sp.), tobacco (*Nicotiana tabacum*), etc. (43pp)

ACCESSION NUMBER: 1992-12564 BIOTECHDS

TITLE: Chilling resistant transgenic higher plant;  
transgenic plant with cold tolerance  
containing a spinach, pea or *Arabidopsis* sp. glycerol-3-phosphate-acyltransferase gene, for decreased membrane saturated phosphatidylglycerol content

PATENT ASSIGNEE: Kirin-Beer

PATENT INFO: WO 9213082 6 Aug 1992

APPLICATION INFO: WO 1992-JP24 14 Jan 1992

PRIORITY INFO: JP 1991-83807 4 Oct 1991; JP 1991-5883 16 Jan 1991

DOCUMENT TYPE: Patent

LANGUAGE: English

L3 ANSWER 10 OF 11 BIOTECHDS COPYRIGHT 2002 DERWENT INFO AND ISI  
 TI Alteration of gene expression during the induction of freezing tolerance  
 in Brassica napus suspension cultures;  
 rape crop improvement  
 AN 1988-01920 BIOTECHDS  
 AB A suspension culture of winter rape (Brassica napus cv Jet Neuf) was  
 hardened to a lower lethal temp. for 50% of the sample at -20 deg in 8  
 days at RT with 50 ug abscisic acid (ABA). Cold-hardened plants were  
 vernalized at 4 deg under a 16 hr/8hr day/night photoperiod for 12 wk.  
 Freeze-testing of cells was by incubating cells at 0 deg for 30 min and  
 adding dry ice every 30 min which lowered the temp. stepwise by -2.5  
 deg.  
 SDS-PAGE of the polypeptides initially extracted in phosphate buffer  
 showed a 17 KDa soluble band and a 20 KDa membrane-bound  
**polypeptide**. Heat shock did not cause an immediate increase in  
 freezing tolerance nor did it alter the induction of freezing tolerance  
 over the 8-day hardening period. Total RNA levels were higher in  
 hardened  
 cells on day 8 than in non-hardened ones. The amount of 20 KDa ER-bound  
**polypeptide** increased during hardening and may have fused as  
 vesicles with the plasma membrane altering its low temp. tolerance. (33  
 ref)

ACCESSION NUMBER: 1988-01920 BIOTECHDS  
 TITLE: Alteration of gene expression during the induction of  
 freezing tolerance in Brassica napus suspension cultures;  
 rape crop improvement  
 AUTHOR: Johnson-Flanagan A M; \*Singh J  
 CORPORATE SOURCE: Agr.Canada  
 LOCATION: Plant Research Centre, Agriculture Canada, Ottawa, Ontario  
 K1A 0C6, Canada.  
 SOURCE: Plant Physiol.; (1987) 85, 3, 699-705  
 CODEN: PLPHAY  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

L3 ANSWER 11 OF 11 BIOTECHDS COPYRIGHT 2002 DERWENT INFO AND ISI  
 TI Abscisic acid and low temperature induced **polypeptide** changes  
 in alfalfa (Medicago sativa) cell suspension cultures;  
 investigation of **cold tolerance** mechanism  
 AN 1987-03161 BIOTECHDS  
 AB Freezing resistance was induced in alfalfa (Medicago sativa) suspension  
 cultures by growth at low temp. (3 deg) for 6 days, or by growth in the  
 presence of 0.75 mM abscisic acid (ABA) at 23 deg for 4 days. Changes  
 in  
 extracellular, cellular and subcellular proteins in the 2 types of  
 suspension culture, and in a control, were investigated by  
 SDS-polyacrylamide gel electrophoresis. Extracellular proteins from 4-  
 to  
 6-day old ABA and low temp. grown alfalfa cells showed decreased  
 electrophoretic mobilities, lacked a 190-kDa glycoprotein, and had  
 reduced amounts of 4 other polypeptides. In total cell protein  
 analyses,  
 a 42-kDa protein was enriched in both ABA and low temp. treated alfalfa  
 cells. Several proteins increased or induced by exogenous ABA treatment  
 were observed in the extracellular (12.5 and 13-15 kDa), total cell and  
 cell wall (24 kDa), and soluble (20, 37 and 41 kDa) fractions. However,  
 no major protein changes were resolved by 1-dimensional electrophoretic  
 analyses of crude membrane proteins. (18 ref)

ACCESSION NUMBER: 1987-03161 BIOTECHDS  
 TITLE: Abscisic acid and low temperature induced **polypeptide**  
 changes in alfalfa (Medicago sativa) cell suspension  
 cultures

;  
i~~estigation of cold tolerance  
mechanism~~

AUTHOR: Robertson A J; Gusta L V  
LOCATION: Crop Development Centre, University of Saskatchewan,  
Saskatoon, Sask. Canada S7N 0W0.  
SOURCE: Can.J.Bot.; (1986) 64, 11, 2758-63  
CODEN: CJBOAW  
DOCUMENT TYPE: Journal  
LANGUAGE: English

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FILE 'MEDLINE, BIOSIS, DGENE, EMBASE, SCISEARCH, BIOTECHDS, BIOBUSINESS,  
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2002

L1 4132 S COLD TOLERANCE  
L2 1120 S L1 AND PLANT  
L3 11 S L2 AND POLYPEPTIDE

=> s antifreeze polypeptide

L4 246 ANTIFREEZE POLYPEPTIDE

=> s 14 and plant

L5 72 L4 AND PLANT

=> s 15 and carrots

L6 0 L5 AND CARROTS

=> s 14 and carrot

L7 0 L4 AND CARROT

=> s 15 and 13

L8 2 L5 AND L3

=> d 18 ti abs ibib tot

L8 ANSWER 1 OF 2 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

TI Cold tolerances in plants.

ACCESSION NUMBER: 1999:74398 BIOSIS

DOCUMENT NUMBER: PREV199900074398

TITLE: Cold tolerances in plants.

AUTHOR(S): Griffith, M.

CORPORATE SOURCE: Waterloo Canada

ASSIGNEE: UNIVERSITY OF WATERLOO

PATENT INFORMATION: US 5852172 Dec. 22, 1998

SOURCE: Official Gazette of the United States Patent and Trademark  
Office Patents, (Dec. 22, 1998) Vol. 1217, No. 4, pp.

3454.

ISSN: 0098-1133.

DOCUMENT TYPE: Patent

LANGUAGE: English

L8 ANSWER 2 OF 2 BIOTECHDS COPYRIGHT 2002 DERWENT INFO AND ISI

TI New isolated **antifreeze polypeptide** from fish skin; recombinant antifreeze protein production for in the food industry and gene for use in imparting **cold tolerance** or freezing tolerance to animal, plant, fungus, bacterium cell

AN 1997-11051 BIOTECHDS

AB An isolated skin-type intracellular antifreeze protein (sAFP) is claimed, where sAFP: comprises an N-terminal MDAP subsequence; comprises an internal AATAAAKAAA subsequence; does not comprise a signal peptide; induces a concentration-dependent decrease in the freezing point of an aq. solution. Also claimed are: conservative modifications of sAFP; an isolated intracellular sAFP encoded by a coding nucleic acid which hybridizes to a sAFP nucleic acid selected from sAFP1, sAFP2, sAFP3, sAFP4, sAFP5, sAFP6, sAFP7, sAFP8, F2 and 11-3, where the coding nucleic acid does not hybridize to a pkenc17 nucleic acid; an expression vector containing the nucleic acid encoding the sAFP; a recombinant cell containing the sAFP nucleic acid; a method for making an aq. composition resistant to freezing, which involves adding sAFP to the composition; an antibody specific for sAFP, which does not bind to liver-type AFP; and a recombinant skin-type promoter, which comprises nucleic acids which direct high levels of expression of nucleic acid in the skin of winter flounder. AFPs are useful in the food industry and in providing **cold tolerance** to plant, fungus, animal and bacterium cells. (104pp)

ACCESSION NUMBER: 1997-11051 BIOTECHDS

TITLE: New isolated **antifreeze polypeptide** from fish skin; recombinant antifreeze protein production for use in the food industry and gene for use in imparting **cold tolerance** or freezing tolerance to animal, plant, fungus, bacterium cell

AUTHOR: Hew C; Gong Z

PATENT ASSIGNEE: HSC-Res.Develop.

LOCATION: Toronto, Ontario, Canada.

PATENT INFO: WO 9728260 7 Aug 1997

APPLICATION INFO: WO 1996-CA62 31 Jan 1996

PRIORITY INFO: US 1996-10920 31 Jan 1996

DOCUMENT TYPE: Patent

LANGUAGE: English

OTHER SOURCE: WPI: 1997-402614 [37]

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FILE 'MEDLINE, BIOSIS, DGENE, EMBASE, SCISEARCH, BIOTECHDS, BIOBUSINESS, TOXLIT, FROSTI, FSTA, JICST-EPLUS, JAPIO' ENTERED AT 15:48:51 ON 15 MAR 2002

L1 4132 S COLD TOLERANCE  
L2 1120 S L1 AND PLANT  
L3 11 S L2 AND POLYPEPTIDE  
L4 246 S ANTIFREEZE POLYPEPTIDE  
L5 72 S L4 AND PLANT  
L6 0 S L5 AND CARROTS  
L7 0 S L4 AND CARROT  
L8 2 S L5 AND L3